

1	PROCESS DISINFECTING, PRESERVING, DEODORIZING, OR STERILIZING	27	..And additional disinfecting or sterilizing agent
2	.Step of warning or decreasing hazard of process	28	.Using disinfecting or sterilizing substance
3	.Process control in response to analysis	29	..In situ generation of agent other than aldehyde or glycol
4	.A gas is substance acted upon	30	..And removing the agent by chemical reaction or sorption
5	.Deodorizing	31	..And recovering or reusing the agent
6	.Affecting structure, article, etc., submerged in marine environment	32	..Treating bulk material
7	.Maintaining environment nondestructive to metal	33	..With positive pressure or vacuum
8	..Using protective article (e.g., antitarnish fabric, etc.)	34	..Using alkylene oxide
9	..Using gaseous preservative, preservative added to gaseous phase of environment, or maintaining gaseous phase nondestructive	35	..Using cyanide
10	...Manipulating gaseous environment for preservative purpose	36	..Using aldehyde
11	...Steam environment	37	..Using halogen or halogen-containing compound
12	..Aqueous acid environment (i.e., pH << 4.1)	38	.Using fluent heat transfer medium other than air
13	..Aqueous alkali environment (i.e., pH >> 8.4)	39	.By sudden release of pressure
14	..Essentially pure water environment	40	.Process of storage or protection
15	...Using organic compound having phosphorus	41	..Of liquid
16	...Using organic nitrogen compound other than ammonium salt	42	...By preventing evaporation
17	...Using organic carboxylic acid or salt thereof	43	....Of water
18	...Using inorganic silicon or phosphorus compound	44	BLOOD TREATING DEVICE FOR TRANSFUSIBLE BLOOD
19	...Using heavy metal or compound thereof	45	.Oxygenator
20	.Using sonic or ultrasonic energy	46	..Including integral heat-exchange means
21	.Using microwave energy	47	..Bubble or foam producing
22	.Using direct contact with electrical or electromagnetic radiation	48	..Membrane
23	..In atmosphere other than air	49	INCLUDING MEANS FACILITATING PART REPLACEMENT OR REPAIR OTHER THAN SOLID, EXTENDED SURFACE, FLUID CONTACT MEANS
24	..Ultraviolet	50	ANALYZER, STRUCTURED INDICATOR, OR MANIPULATIVE LABORATORY DEVICE
25	.Including additional step of preventing damage to sealed container	51	.Calorimeter
26	.Using direct contact steam to disinfect or sterilize	52	.Chemiluminescent
		53	.Corrosion tester
		54	.Flame ionization detector
		55	.Structured visual or optical indicator, per se
		56	..Having reagent in absorbent or bibulous substrate
		57	..Having coated reagent
		58	..In holder or container having special form
		59	...Column
		60	....Having plural-layered material

CLASS 422 CHEMICAL APPARATUS AND PROCESS DISINFECTING, DEODORIZING,
PRESERVING, OR STERILIZING

61	.Test package or kit	83	.Means for analyzing gas sample
62	.Automatic analytical monitor and control of industrial process	84	..Breath tester
63	.Sample mechanical transport means in or for automated analytical system	85	...Based on color change
64	..Means is turntable (circular)	86	..Including means reacting gas with color indicator
65	..Means is conveyor and rack	87	...Strip indicator
66	..Means is moving tape or band	88	..Including means for adsorbing or absorbing gas into or onto liquid or solid media
67	..With specific analytical program control means	89	...Gas chromatography
68.1	.Means for analyzing liquid or solid sample	90	...With conductimetric detector
69	..Sorption testing	91	...With photometric detector
70	...Liquid chromatography	92	...With volumetric detector
71	...With radioactive material	93	..Including means dividing sample stream into plural parallel segments having diverse treating means and the analytical result compared or combined
72	..Including centrifuge	94	..Combustible gas detector
73	..With coagulometer for agglutination, clotting, or prothrombin, or for particle (e.g., cell, etc.) counting, or volume or characteristics determination	95	...With thermoelectric detector
74	..Dairy tester	96	....Wheatstone bridge
75	..Including titrator	97	.....With specific coating on bridge element
76	...Conductimetric type	98	..Analysis based on electrical measurement
77	....With integrating or differentiating means	99	.Miscellaneous laboratory apparatus and elements, per se
78	..Including means for pyrolysis, combustion, or oxidation	100	..Pipette or other volumetric fluid transfer means
79	...Biological, chemical, or total oxygen demand (i.e., BOD, COD, TOD)	101	..Including means for separating a constituent; e.g., filter, condenser, extractor, etc.
80	...And means directly analyzing evolved gas	102	..Container
81	.Automated system with sample fluid pressure transport means	103	..Valve or connector structure
82	...And means segmenting fluid material	104	..Holder, support, housing, or hood
82.01	..Measuring electrical property	105	CONTROL ELEMENT RESPONSIVE TO A SENSED OPERATING CONDITION
82.02	...Resistance or conductivity	106	.Responsive to liquid level
82.03	...Ion selective electrode	107	.Control element directly mechanically linked to separate sensor
82.04	....Dissolved gas	108	.Control element responds proportionally to a variable signal from a sensor
82.05	..Measuring optical property by using ultraviolet, infrared, or visible light	109	..Controls heat transfer
82.06	...Optode or optrode	110	..Controls flow rate of a material to or from a contact zone
82.07	....Fluorescence	111	...Material is an input to contact zone
82.08	...Fluorescence	112	.Control element is fluid pressure sensitive
82.09	...Absorbance or transmittance		
82.11	...Waveguides		
82.12	..Measuring temperature		
82.13	..Measuring pressure		

113	..Pressure-relief valve (e.g., pop-off valve) or check valve	139	.Fluidized bed
114	.Control element is a binary responsive valve	140	..With liquid present
115	..Valve diverts flow from a contact zone	141	..Plural reaction beds
116	.Sensed condition is operating time and control is operation sequencer	142	...Sequentially arranged
117	WITH SAFETY FEATURE	143	..Including specific wind box or particulate matter support grid
118	.Preventing opening of closure of pressurized apparatus at unsafe pressure	144	..Including means to strip reaction mass from, or to regenerate, the particulate matter (including fluidized bed regenerators, per se)
119	WITH INDICATING, SIGNALLING, RECORDING, SAMPLING, OR INSPECTION MEANS	145	..And means providing flow of particulate matter into or out of reaction chamber
120	FOR DEODORIZING OF, OR CHEMICAL PURIFICATION OF, OR GENERATION OF, LIFE-SUSTAINING ENVIRONMENTAL GAS	146	..With heat exchange means affecting reaction chamber or reactants located therein
121	.With means exposing gas to electromagnetic wave energy or corpuscular radiation	147	..And means mechanically separating and removing particulate bed material from fluid effluent
122	.Including solid, extended surface, fluid contact reaction means (e.g., Raschig rings, particulate or monolithic catalyst, etc.)	148	.Ammonia synthesizer
123	.Including means adding material into environmental gas	149	.With means simultaneously carrying out conjugated reactions within single reactor
124	..And mechanical means creating forced draft at addition site	150	.Pigment or carbon black producer
125	..With material-heating means	151	..With means injecting quench stream into reaction chamber downstream of reaction site
126	...Material is combusted	152	..With particulate product collecting surface and means mechanically removing product therefrom
127	SHOCK OR SOUND WAVE	153	...Moving collecting surface
128	.Including supersonic or ultrasonic energy generation means	154	....Rotary collecting surface
129	CHEMICAL REACTOR	155	.....Disk or plate
129.1	.Soap making	156	..With plural sequential reaction zones or chambers
130	.Bench scale	157	...With movably or removably mounted plug means for converting reactor from (N) to (N+1) reaction stages
131	.Organic polymerization	158	..Vapor phase reaction type
132	..Closed loop	159	.For radioactive reactant or product
133	..Generating foamed plastic	160	.Inorganic sulfur acid or anhydride producing type
134	..Including plural sequential reaction stages	161	..Acid is final product
135	..Including reactant agitating means in reaction chamber	162	.Inorganic hydrator
136	...And means rotatably mounting reaction chamber	163	.Explosives synthesizer
137	...Horizontal reaction chamber with screw or worm agitator	164	.Solid reactant type (i.e., absence of fluid reactants)
138	..With heat exchanger for reaction chamber or reactants located therein		

CLASS 422 CHEMICAL APPARATUS AND PROCESS DISINFECTING, DEODORIZING,
PRESERVING, OR STERILIZING

165	..Including ignition means for reactant	184.1	.For chemically destroying or disintegrating solid waste, other than burning alone
166	...Electrically actuated		
167	..Including reactor cooling means surrounding reactor	185	.For chemical recovery of chemicals from waste paper making liquor
168	.Waste gas purifier		
169	..Including means providing sequential purification stages	186	.With means applying electromagnetic wave energy or corpuscular radiation to reactants for initiating or perfecting chemical reaction
170	...Plural chemical reaction stages		
171	....Solid, extended surface, fluid contact type	186.01	..Magnetic
172	....And means downstream of a stage for injecting a reactant into waste gas for interreaction in subsequent stage	186.02	...Object protection
		186.03	...With electrical discharge
173	..With heat exchanger for reaction chamber or reactants located therein	186.04	..Electrostatic field or electrical discharge
		186.05	...Treating surface of solid substrate
174	...Electrical type	186.06	....Surface is metal
175	..Regenerative heat sink	186.07	...Ozonizers
176	..Including waste gas flow distributor upstream of reaction site and within reaction chamber modifying velocity profile of gas	186.08	....With preparatory or product-treating means
		186.09	.....With drying means
		186.1	.....With filtering or particle removal means
177	..Including solid, extended surface, fluid contact reaction means; e.g., inert Raschig rings, particulate absorbent, particulate or monolithic catalyst, etc.	186.11	.....With cooling, compression, condensation, or liquefying means
		186.12	....With subsequent use means
178	...And contact regenerating means or means for cleaning an internal surface of the reaction chamber	186.13	....With electrode moving means
		186.14	....With fluent reactant flow control means
179	...Fixed bed with resilient or differential thermal expansion compensating bed support means	186.15	....With current control or special electrical supply means
		186.16	.....With pulse generating means
180	...Unitary (i.e., nonparticulate) contact bed (e.g., monolithic catalyst bed, etc.)	186.18	....Cylindrical electrode
		186.19	.....With heating or cooling means
181	...Fixed annularly shaped bed of contact material and means directing gas therethrough substantially perpendicular to longitudinal axis of bed	186.2	....With heating or cooling means
		186.21	...Arc or spark discharge means
		186.22	....With electrode or reaction space heating or cooling means
182	..Including means injecting combustion fuel into reaction chamber in direct contact with waste gas	186.23	....With preparatory or product-treating means
		186.24	.....With nitrogen fixation means
183	...And means mixing combustion fuel with waste gas upstream of reaction site	186.25	.....With cooling or pressurizing means
		186.26	....With electrode moving means
		186.27	.....With current control means
		186.28	....With current control means
		186.29	...With RF input means
		186.3	..With ultraviolet radiation generating means
		187	.Combined

188	.Including plural reaction stages	204	...Means associated with jacket providing combustion gas as heat-exchange medium
189	..And means providing discrete sequential reaction stages; e.g., train, etc.	205	...Including baffle or stirring means disposed within jacket or chamber, the baffle means within chamber connected directly to wall thereof
190	...Plural solid, extended surface, fluid contact reaction stages each containing; e.g., inert Raschig rings, particulate sorbent, particulate or monolithic catalyst, etc.	206	..Regenerative heat sink
191	....Superimposed reaction stages in single reaction chamber	207	..Means injecting internal quench stream into reaction stream downstream of reaction stage
192	....At least one reaction stage formed of fixed, annularly shaped bed of contact material and means directing reaction stream therethrough substantially perpendicular to longitudinal axis of bed	208	..Apparatus operates at positive pressure
193	...Reaction stages located within single reaction chamber	209	.Including means rotating reaction chamber during use
194	....And means downstream of a stage for internally injecting a reactant into a reaction stream for interreaction in a subsequent stage, or injecting an internal quench stream into reaction stream passing between stages	210	..And means wiping or scraping interior surface of reaction chamber
195	....Means within reaction chamber redistributing reaction stream as it passes between adjacent stages	211	.Including solid, extended surface, fluid contact reaction means; e.g., inert Raschig rings, particulate absorbent, particulate or monolithic catalyst, etc.
196	..Including plural parallel reaction stages with each stage in form of a reaction tube	212	..With means removing and recovering product from extended surface contact material
197	...Tubular stages in single reaction chamber	213	..Particulate contact material type and means providing flow of particulate material into or out of reaction chamber with reactants or products
198	.Including heat exchanger for reaction chamber or reactants located therein	214	...Transfer line type reaction chamber
199	..Electrical type	215	...And internal mixing means
200	..Indirect heat-exchange tube within reaction chamber with a nonreactant heat-exchange fluid passing therethrough	216	..Compact bed of particulate, fluid contact material and means providing gravity flow of material within bed
201	...Tube and shell type	217	..And means upstream of extended surface, fluid contact means removing particulate impurities from reactant stream
202	..Heat-exchange jacket surrounding reaction chamber	218	..Fixed annularly shaped bed of contact material and means directing reactant therethrough substantially perpendicular to longitudinal axis of bed
203	...Including fluid-transfer means connecting chamber to heat-exchange jacket		

219	..And means loading contact material into, or unloading contact material from, reactor or means providing internal contact material reservoir	237	..Movably mounted container-type separating means and means moving same
220	..And reactant flow distributor upstream of contact means and within reaction chamber modifying velocity profile of reactant flow	238	..Solid reactant containing perforated or porous container-type separating means
221	..Fixed contact bed type with resilient or differential thermal expansion compensating bed support means	239	.Reaction chamber includes at least one perforated, porous, or semipermeable wall and is adapted for holding solid reactant
222	..Unitary (i.e., nonparticulate) contact bed, (e.g., monolithic catalyst bed, etc.)	240	.Including specific material of construction
223	..With contact material regenerating means, per se, or combined with reactor	241	..Reactor liner
224	.Including internal mixing or stirring means	242	.Positive pressure type
225	..Mechanical type stirring means	243	PHYSICAL TYPE APPARATUS
226	...In positive pressure reactor	244	.Including serially disposed vaporizing heating means (sublimers) and solid material deposition means maintained at a temperature lower than said heating means (condenser)
227	...Including a draft tube for internal recirculation	245.1	.Crystallizer
228	...Including flow directing baffle attached directly to reaction chamber wall	250.1	..Crucible-free zone refiner
229	...Longitudinally extending spiral stirring means	251	..Including means separating and conveying crystals to a melting zone
230	..Thermosiphon or differential density mixing means; e.g., means internally recycling reaction mass via differential density pumping, etc.	252	..Hydraulic classifier with crystallizer
231	...Gas sparger type mixing means submerged in liquid reactant	253	..Including feed compartment for introducing nutrient
232	.Including solid reactant and means charging solids into, or discharging solids from, reaction chamber	254	..Movable crystallizer or scraping means
233	..Having both charge and discharge means along with means conveying solids therebetween located within reaction chamber	255	.Means separating or dissolving a material constituent
234	.Including external recycle loop	256	..Liquid-liquid contact means
235	..And means heating or cooling loop or reaction mass located therein	257	...Including pulsator, adjustable plates, or plural inlets; e.g., spraying, etc.
236	.Including means separating reaction chamber into plural reactant-containing compartments and means moving reactant therebetween	258	...Including rotating chamber or rotating member within chamber; e.g., mixer-settler, etc.
		259	...Having rotating member within chamber
		260	...Including heating and cooling means
		261	..Liquid-solid contact means
		262	...Sulfur extraction
		263	...Including monolithic nonporous body of solute
		264	...Including means restricting solvent contact to one end of body of solute

265	...Buoyant holder	293	..Fluid having simultaneous diverse function
266	...Manual or mountable holder; e.g., soap holder, etc.	294	..Including flexible or collapsible treating chamber
267	...Including means to remove solids from a filter	295	..Including pressure treating chamber (above ambient)
268	...Conveyor support for solid material during contact; e.g., bucket, etc.	296	...Fluid pressure maintains closure or seal
269	...Including rotating member	297	...And rack, support or handling means
270	....Member is container	298	...And vaporizer; e.g., boiler, etc.
271	.....Including internal rotating member	299	....Constituting treating chamber
272	.....Partitions divide container	300	..Including rack, support or handling means
273	....Member conveys material into and out of container; e.g., screw propeller, etc.	301	...Apparatus closure operates means immersing article or material in liquid chemical
274	...Including perforated member which is nonlinear or inclined with respect to the major axis of container	302	...For treating container or covers therefor
275	...Including parallel perforated members perpendicular to, or parallel to, major axis of container	303	....Container is inverted
276	...Side wall of holder perforated	304	....Including endless conveyor
277	....Perforations of holder form inlet for solvent	305	.Including gas generating means
278	...Including plural orifice inlet, or deflector adjacent inlet for solvent flow	306	.Including means for adding a material to a gas
279	....Having inlet submerged within body of a solid solute	307	.Heat treating vessel with heating means
280	...Solvent vapor condenser	308	..Including multiple stages
281	...Means recirculating solvent	309	..Including comminuting, kneading, or surface-wiping means interior or vessel
282	...Including bypass	310	ELEMENTS OR ADJUNCTS
283	...Including dip tube for inlet or outlet of fluid solvent	311	.Bed support means (e.g., support grid or plate for supporting particulate bed of contact material, etc.)
284	...Internal heater; e.g., steam coil, etc.	312	.Tube element containing extended surface contact reaction means (e.g., a tube internally coated or packed with a catalyst, etc.)
285	..And heating means		
286	...Including mechanical comminuting or conveying means		
287	....Within treating vessel		
288	...Including means removing vapor from treated material		
289	....And direct contact heating fluid means within separating or dissolving chamber vessel		
290	....And indirect contact heating fluid means in separating or dissolving chamber		
291	.Combined		
292	.Apparatus for treating solid article or material with fluid chemical		
			<u>CROSS-REFERENCE ART COLLECTIONS</u>
		900	DECREASING POLLUTION OR ENVIRONMENTAL IMPACT
		901	POLYMER DISSOLVER
		902	SODIUM CHLORIDE AND POTASSIUM CHLORIDE DISSOLVER
		903	RADIOACTIVE MATERIAL APPARATUS
		904	NITROGEN FIXATION MEANS
		905	MISCELLANEOUS LIQUID STERILIZATION MEANS

906	PLASMA OR ION GENERATION MEANS	935	FLUID TRANSFERRING GLASSWARE
907	CORONA OR GLOW DISCHARGE MEANS		[B01L 3/00B]
908	CRUCIBLES [B01L 3/04]	936	.Tubes; conduits [B01L 3/00B2]
909	CRYSTALLIZING DISHES [B01L 3/06]	937	.Joints; seals [B01L 3/00B4]
910	FLASKS [B01L 3/08]	938	.Stopcocks; valves [B01L 3/00B6]
911	WASH BOTTLES [B01L 3/10]	939	CONTAINERS FOR THE PURPOSE OF
912	GAS JARS OR CYLINDERS [B01L 3/12]		RETAINING A MATERIAL TO BE
913	TEST TUBES [B01L 3/14]		ANALYZED [B01L 3/00C]
914	.Specific test tube, per se [B01L 3/14B]	940	.Made of a rigid material [B01L 3/00C2]
915	..With identification means, e.g., coded [B01L 3/14B2]	941	..With identification means, e.g., coded [B01L 3/00C2B]
916	.Closing or opening means, e.g., corks, bungs [B01L 3/14C]	942	..For multiple samples, e.g., micro-titration plate [B01L 3/00C2D]
917	..With identification means, e.g., coded [B01L3/14C2]	943	...Specially adapted for heating or cooling samples [B01L 3/00C2D2]
918	.Specially adapted for centrifugation [B01L 3/14D]	944	.Made of a flexible material [B01L 3/00C4]
919	BURETTES; PIPETTES [B01L 3/02]	945	..With identification means, e.g., coded [B01L 3/00C4B]
920	.Burettes, i.e., for withdrawing and redistributing liquids through different conduits [B01L 3/02B]	946	.With fluid transport, e.g., multi-compartment structure [B01L 3/00C6]
921	..Plunger type [B01L 3/02B2]	947	..Using capillary action, including fluid transfer through absorbent matrix [B01L 3/00C6C]
922	.Pipettes, i.e., with only one conduit for withdrawing and redistributing liquids [B01L 3/02C]	948	..For multiple samples, e.g., multi-well filtration [B01L 3/00C6D]
923	..Plunger pump type [B01L 3/02C3]		
924	...Capillary pipettes, i.e., having a very small bore [B01L 3/02C3C]		
925	...Having mechanical strokelength setting means, e.g., movable stops [B01L 3/02C3D]		
926	...Details of motor drive means [B01L 3/02C3M]		
927	...Having several coaxial pistons [B01L 3/02C3P]		
928	...Repeating pipettes, i.e. for dispensing multiple doses from a single charge [B01L 3/02C3R]		
929	...Supports for pipettes [B01L 3/02C3S]		
930	.Drop counters or drop formers [B01L 3/02D]		
931	.Interchangeable or disposable dispensing tips [B01L 3/02E]		
932	..Cooperating with positive ejection means [B01L 3/02E2]		
933	..Means for supplying or disposing of tips, e.g., racks or cassettes [B01L 3/02E4]		
934	.Mounted within a receptacle [B01L 3/02F]		

FOREIGN ART COLLECTIONSFOR 000 **CLASS-RELATED FOREIGN DOCUMENTS**